Multi-axis Controllers CMXR

Multi-axis Controllers CMXR

Key Features

FESTO

At a glance

Powerful – reducing cycle times with optimum motion

Reducing cycle times is a requirement of all customers. There are limits, however, to what is possible based on, for example, the mechanical system, the travel distances or the maximum forces acting on a workpiece.

The challenge is to be quick and at the same time protect the mechanical system. The multi-axis controller CMXR offers the following features:

- Motion path smoothing
- Ramp shapes for acceleration
- Constant path speed

Economical – reducing costs with easy configuration

Reducing costs is always an important issue. The Festo Configuration Tool (FCT) in combination with the programming language Festo Teach Language (FTL) makes configuration quick and easy and significantly shortens configuration times.

This enables the full focus to be on developing the application, since the basic motion programs are contained in the CMXR. The FTL programming tool utilises these basic programs. The FTL programs can therefore be used immediately.

Reliable – easy handling of tools in three dimensions

The flange is not the end of a kinematic system. Mounted on the flange are the tools, which can, for example, comprise pneumatic drives such as the semi-rotary drive DRQD. Tools oriented other than vertically are a challenge for a controller. The CMXR enables the end position of the tool, for example a vacuum suction cup, to be defined three-dimensionally and transfers this point to the programmed path. This feature also makes it easy to move the three-dimensionally positioned tool in the direction of the tool's path simply by pressing a button on the teach pendant CDSA. The teach-in of positions on parts slides, for example, is thus very easy and efficient.

Reliable – easy integration with finished interfaces

The CMXR system offers fully defined interfaces for actuation via an external controller. This can be done with a simple method using digital signals or via a Profibus.
These interfaces enable programs to be selected, started or stopped, for example. The Profibus variant also offers the option of reading or writing variables from the CMXR controller. This transfer of variables enables movements to be influenced or even coupled with a process running on the external controller. To minimise the complexity when using an external PLC, modules for the PLC systems Siemens Simatic S7 and systems based on CoDeSys V2.3 are supplied for actuation via Profibus.

Flexible – from simple to complex kinematic systems

Cartesian system

Tripod

The multi-axis controller CMXR is the heart of a complete kinematic system solution. It combines a mechanical system, electrical drive technology and control technology into a complete motion control package with integrated and harmonised interfaces for all system components involved.

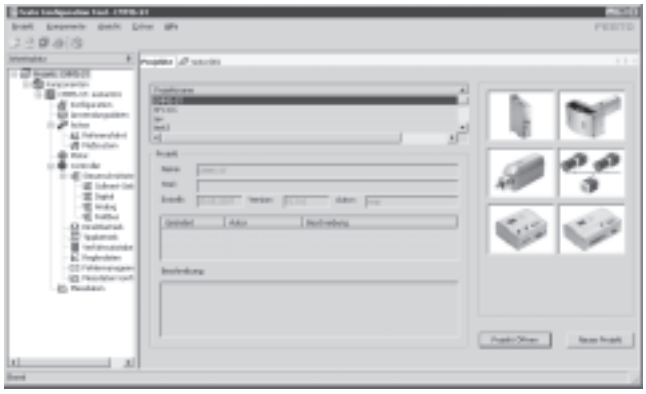
The multi-axis controller enables simple axis movements, from point to point to complex path control. It is able to control simple and complex kinematic systems with up to 6 degrees of freedom in three dimensions. These include, among others, linear and three-dimensional gantries (Cartesian systems) as well as tripod kinematic systems.

Multi-axis Controllers CMXR

Key Features

At a glance

Convenient – quick and easy configuration



The main requirements for product configuration software are speed, reliability and user-friendliness. The multi-axis controller CMXR, like other products from Festo, is configured via the Festo Configuration Tool (FCT). Electrical variables (e.g. inputs and outputs) as well as mechanical variables (e.g. choice of the kinematic system) are defined in the configuration. The sophisticated user guidance system guarantees quick and easy configuration of the complex multi-axis system.

Transparent – programming in plain text with FTL

Via teach pendant CDSA

Via Festo Configuration Tool (FCT)

The motion programs are programmed using the text-based macro programming tool of the Festo Teach Language (FTL). This powerful programming tool contains macros, for example for movements, dynamic settings up to I/O processing of peripheral devices such as grippers, for example, and has been specially developed for the CMXR. Programming can be done online via the teach pendant CDSA or offline via the FTL programming editor. The FTL editor is integrated in the Festo Configuration Tool (FCT).

Convenient – easy programming via teach-in

When creating a motion program, the motion sequence is very often known but not the precise position to be approached, for example of a gripper or a tray. These can only be determined directly during commissioning by means of accurate approaching. The CMXR in combination with the teach pendant CDSA offers dialogue-based software for this purpose, thus enabling quick and easy teach-in of the necessary positions.

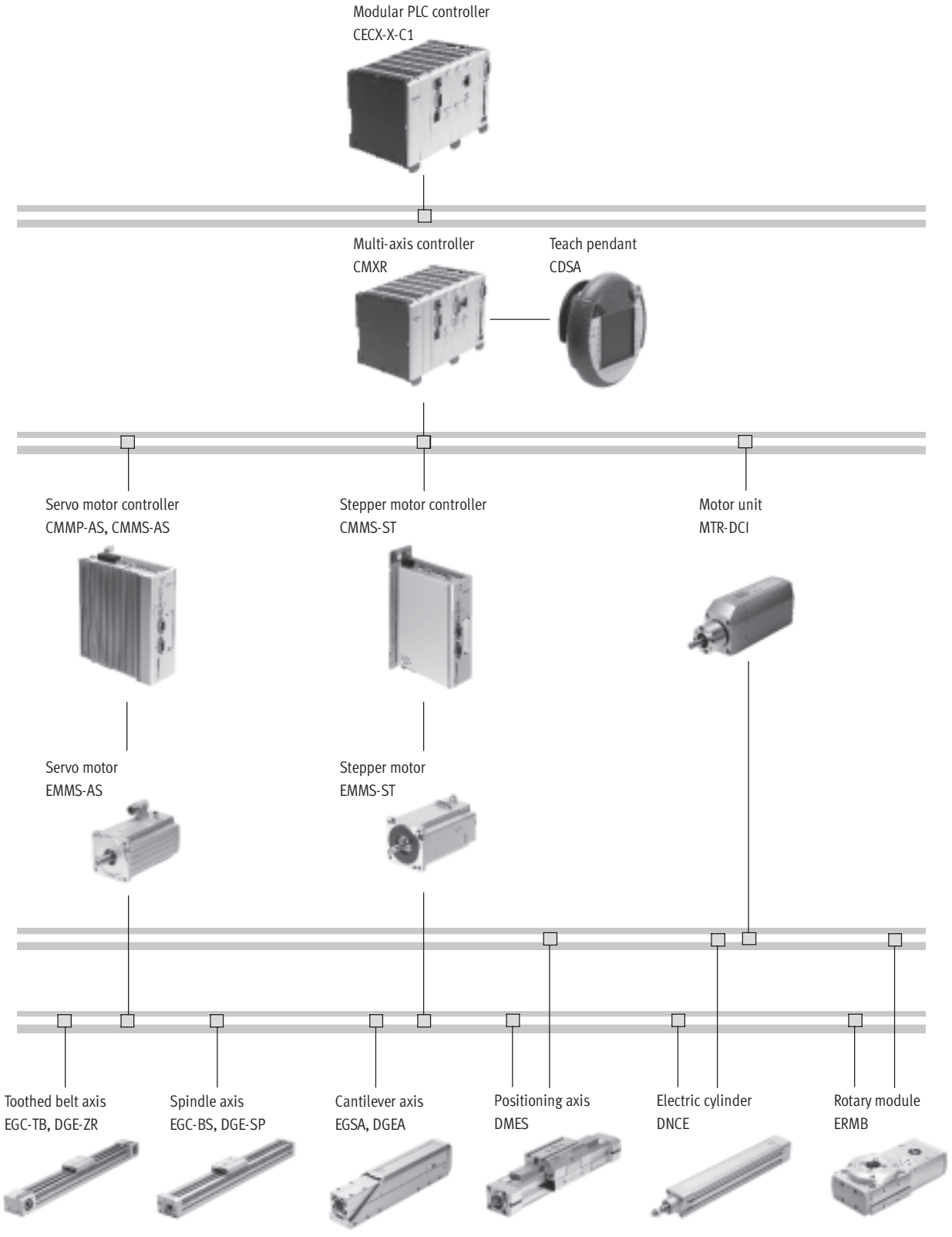
Flexible – mobile operation and monitoring with CDSA

The teach pendant CDSA features an emergency stop switch as well as a 3-stage enabling key. Both devices are designed with two channels and are prepared for integration in the customer's safety circuits. The purpose of the enabling key is to approve the drive power during set-up. In addition to the hardware and ergonomic handle, the CDSA also features a colour touch screen as an alternative to the keypad for starting actions.

Multi-axis Controllers CMXR

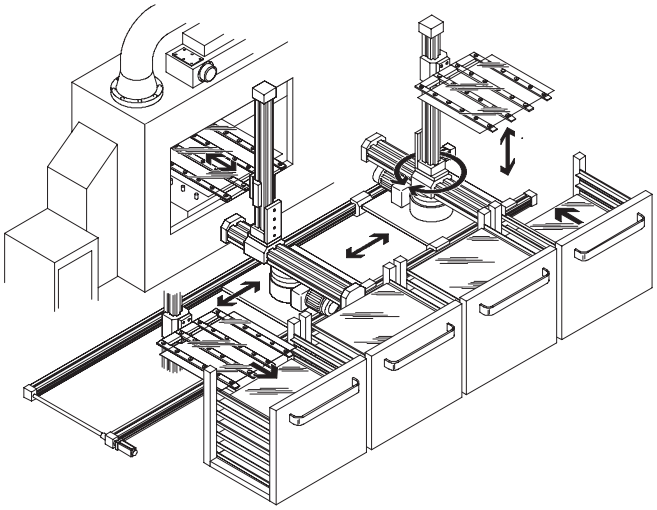
Key Features

Everything from a single source – perfectly co-ordinated

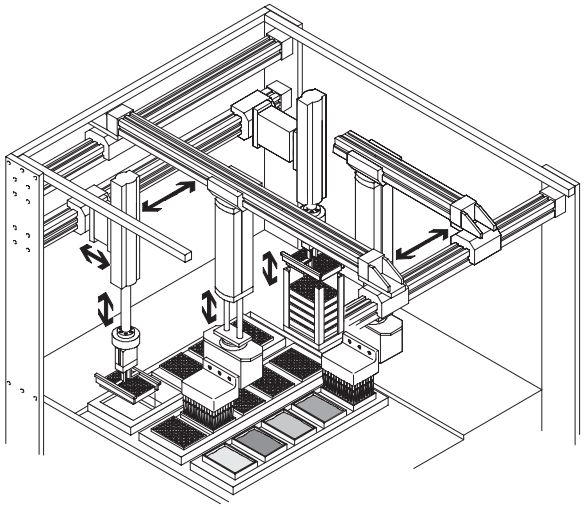


Application examples

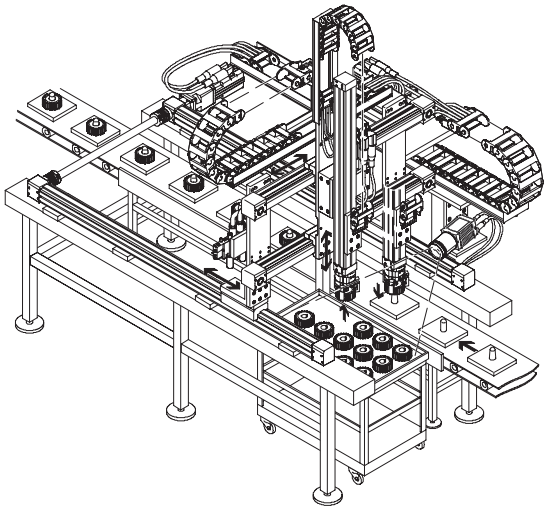
Removing and palletising workpieces



Handling and picking carrier trays

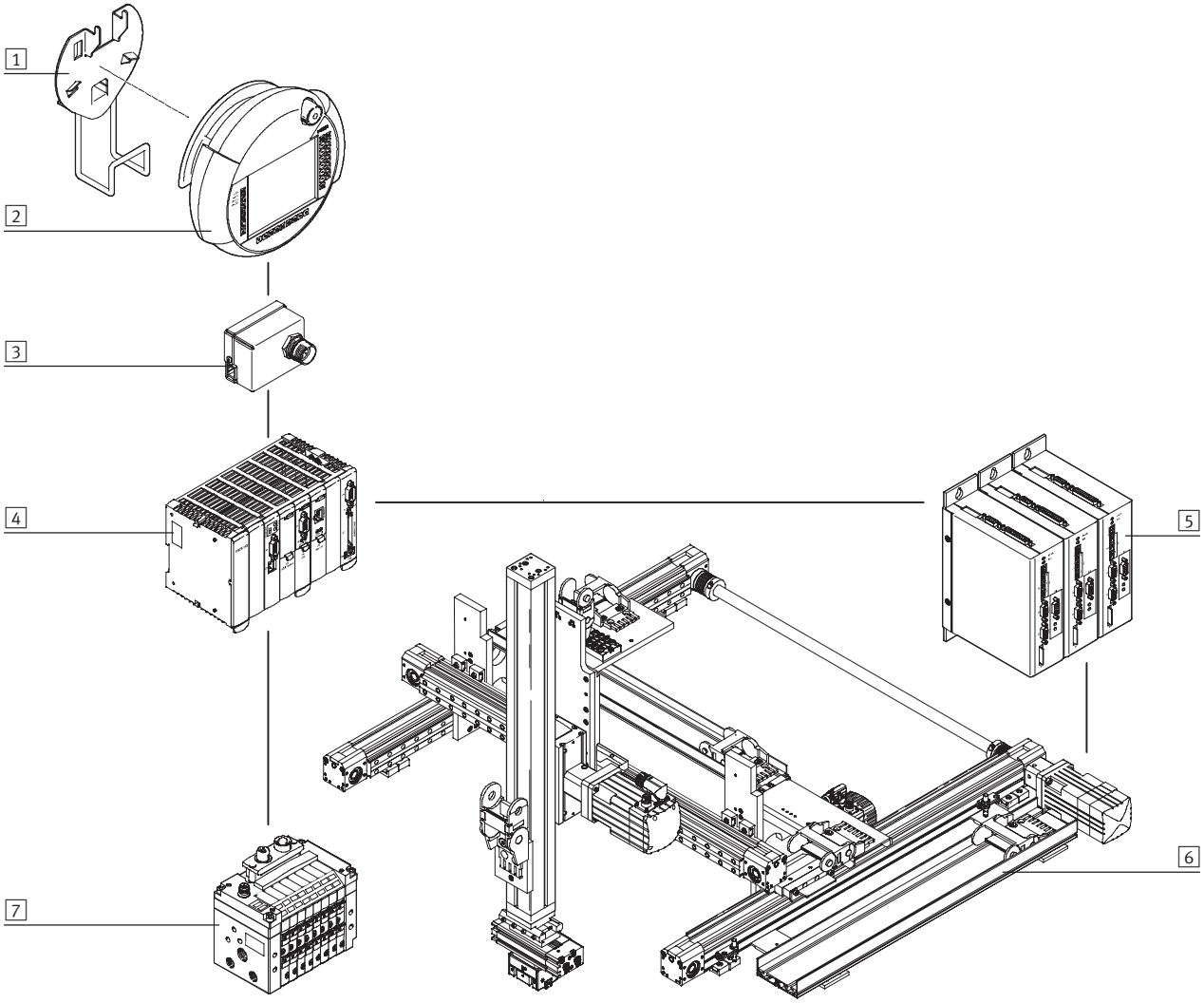


Feeding workpieces with simultaneous quality inspection via a vision system



Multi-axis Controllers CMXR

Peripherals Overview

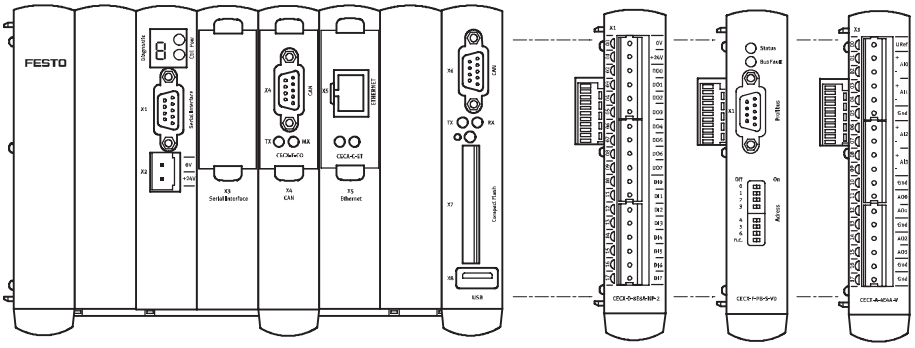


Accessories			
	Type	Brief description	➔ Page/Internet
1	Retainer CAFM	Wall fixture for the teach pendant CDSA with cable suspension	419
2	Teach pendant CDSA	For operating, monitoring and programming the multi-axis controller CMXR-C1	417
3	Interface housing CAMI	Adapter for connecting the teach pendant CDSA outside a control cabinet with the controller CMXR inside a control cabinet	420
4	Multi-axis controller CMXR	Enables simple axis movements, from point to point to complex path control	406
5	Motor controller CMM...	For controlling stepper or servo motors from Festo via a CAN interface	cmm
6	Three-dimensional gantry	Wide range of kinematic systems within the multi-axis modular system from Festo	three-dimensional gantry
7	Valve terminal	The multi-axis controller enables the connection of peripheral devices, for example valve terminals, via a CAN interface	valve terminal
–	Cables and plugs	Connecting cables and plugs for connecting the individual devices	420

Multi-axis Controllers CMXR

Peripherals Overview and type codes

Controller CMXR-C1 with peripheral modules



Peripheral modules		
Type	**Brief description**	**➔ Page/Internet**
Input/output module, digital CECX-D-8E8A-NP-2	• 8 digital inputs • 8 digital outputs	409
Input module, digital CECX-D-16E	• 16 digital inputs	411
Output module, digital CECX-D-14A-2	• 14 digital outputs	412
Input/output module, analogue CECX-A-4E4A-V	• 4 analogue voltage inputs • 4 analogue voltage outputs	413
Input/output module, analogue CECX-A-4E4A-A	• 4 analogue current inputs • 4 analogue current outputs	413
Encoder interface CECX-C-2G2	• 2 encoder interfaces	415
Fieldbus interface CECX-F-PB-S-V0	• Profibus slave DP-V0	416

Note

- Plugs are not included in the scope of delivery for the peripheral modules (plugs ➔ 420)
- Max. 1 Profibus slave module can be used
- Max. 8 peripheral modules can be used

Additional product information
➔ www.festo.com

Type codes

CMXR	–	C1

Type	
CMXR	Multi-axis controller

Controller	
C1	Controller 1

Multi-axis Controllers CMXR

Technical Data

FESTO

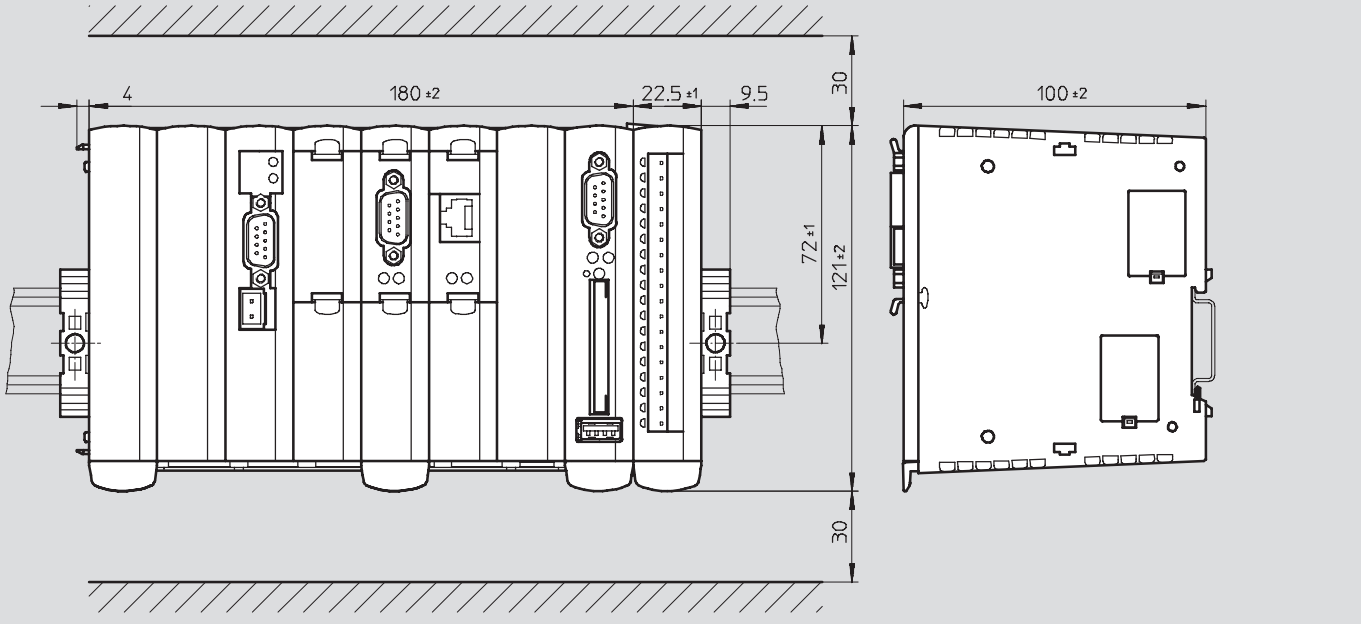
Controller
CMXR-C1

General Technical Data		
Operating voltage range	[V DC]	19.2 ... 30
Nominal operating voltage	[V DC]	24
Power consumption at 24 V	[W]	14
Max. power consumption	[W]	69
Type of mounting		On H-rail (TS 35x7.5)
Type of mounting, controller		Manual
Operating elements		CTRL button
Status display		7-segment display
		LED green = power
Supported kinematic systems		2-axis gantries
		3-axis gantries
		Any interpolation
		Tripod
Total number of axes		6
Breakdown of the axes		3 basic axes
		3 auxiliary axes
		1 manual axis
CPU data		64 MB DRAM
		400 MHz processor
Memory card		Compact Flash ≥ 128 MB
Control methods		I/O standalone
		I/O (16I/16O)
		I/O + Profibus DP
		Profibus DP
Program organisation		Via FTL programs
Configuration support		FCT (Festo Configuration Tool)
Command set		Mathematical functions
Max. number of commands		Approx. 1,500
Programming software		FCT (Festo Configuration Tool)
		CDSA-D1-VX
Programming language		FTL (Festo Teach Language)
		Text-based macro language
USB interface		USB 1.1
Protection class		III
Product weight	[g]	580
Materials		
Note on materials		Contains PWIS (paint-wetting impairment substances)
		RoHS-compliant

Technical Data – Interfaces		
Ethernet		
Connector plug		RJ45 socket, 8-pin
Transmission speed	[Mbps]	10/100
Supported protocols		TCP/IP
Fieldbus interface		
Type		CAN bus
Number		2x CANopen masters
Connection technology		Sub-D plug, 9-pin
Max. fieldbus transmission rate	[Mbps]	1
		Can be set via software
Electrical isolation		No

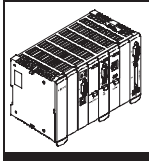
Operating and environmental conditions		
Ambient temperature	[°C]	5 ... 55
Storage temperature	[°C]	–40 ... +70
Resistance to shock		EN 60068-2-27 EA
		15 g, 11 ms (half-sine)
Resistance to vibration		EN 60068-2-6-FC
		5 ... 9 Hz 3.5 mm
		9 ... 150 Hz 1g
Relative air humidity	[%]	10 ... 95
Protection class		IP20
CE mark (see declaration of conformity)		To EU EMC Directive
Certification		cULus Listed (OL)
		C-Tick

Dimensions



FESTO

Ordering Data

Controller	Part No.	Type
	**552095**	**CMXR-C1**

Ordering Data – Documentation[1)]

	Language	Part No.	Type		Part No.	Type
		System manual			Programming manual	
	EN	**560310**	**GDCP-CMXR-SY-EN**		**560316**	**GDCP-CMXR-SW-EN**
	ES	**560311**	**GDCP-CMXR-SY-ES**		**560317**	**GDCP-CMXR-SW-ES**
	FR	**560312**	**GDCP-CMXR-SY-FR**		**560318**	**GDCP-CMXR-SW-FR**
		Hardware manual			Control interface manual	
	EN	**560322**	**GDCP-CMXR-HW-EN**		**560328**	**GDCP-CMXR-F-EN**
	ES	**560323**	**GDCP-CMXR-HW-ES**		**560329**	**GDCP-CMXR-F-ES**
	FR	**560324**	**GDCP-CMXR-HW-FR**		**560330**	**GDCP-CMXR-F-FR**

1) User manual in paper form is not included in the scope of delivery

Input/output module, digital
CECX-D-8E8A-NP-2

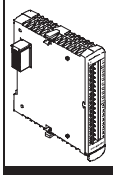
General Technical Data		
Operating voltage range	[V DC]	19.2 ... 30
Nominal operating voltage	[V DC]	24
Electrical connection technology for I/O		Socket strip, grid 5.08 mm
Power consumption at 5 V	[W]	0.4
Power consumption at 24 V	[W]	1.9
Protection class		III
Product weight	[g]	135
Materials		
Note on materials		Contains PWIS (paint-wetting impairment substances)
		RoHS-compliant

Technical Data		
Digital inputs		
Number		8
Fast clock pulse inputs		2, interruptible, response time 50 µs
Input voltage	[V DC]	24
Nominal value for FALSE	[V DC]	≤ 5
Nominal value for TRUE	[V DC]	≥15
Input signal delay	[ms]	20, 100, adjustable
	[kHz]	12 with interrupt input
Electrical isolation		Yes, via optocoupler
Status display		Green LED
Switching logic		NPN (negative switching)
Digital outputs		
Number		8
Contact		Transistor
Output voltage	[V DC]	24
Output current	[A]	2 with 50% concurrence
Short circuit proof		Yes
Electrical isolation		Yes, via optocoupler
Status display		Orange LED
Switching logic		PNP (positive switching)

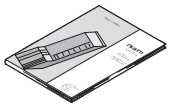
Operating and environmental conditions		
Ambient temperature	[°C]	5 ... 55
Storage temperature	[°C]	–40 ... +70
Resistance to shock		EN 60068-2-27 EA
		15 g, 11 ms (half-sine)
Resistance to vibration		EN 60068-2-6-FC
		5 ... 9 Hz 3.5 mm
		9 ... 150 Hz 1g
Relative air humidity	[%]	10 ... 95
Protection class		IP20
Certification		cULus Listed (OL)

Ordering Data

Input/output module, digital

	Part No.	Type
	**552099**	**CECX-D-8E8A-NP-2**

Documentation[1)]

	Language	Part No.	Type
	EN	**560586**	**GDCC-CECX-D-8E8A-NP-EN**
	ES	**560587**	**GDCC-CECX-D-8E8A-NP-ES**
	FR	**560588**	**GDCC-CECX-D-8E8A-NP-FR**

1) User manual in paper form is not included in the scope of delivery

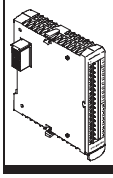
Input module, digital
CECX-D-16E

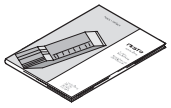
General Technical Data		
Electrical connection technology for I/O		Socket strip, grid 5.08 mm
Power consumption at the system bus	[W]	0.4
Protection class		III
Product weight	[g]	130
Materials		
Note on materials		Contains PWIS (paint-wetting impairment substances)
		RoHS-compliant

Technical Data		
Digital inputs		
Number		16
Fast clock pulse inputs		2, interruptible, response time 100 µs
Input voltage	[V DC]	24
Nominal value for FALSE	[V DC]	≤ 5
Nominal value for TRUE	[V DC]	≥15
Input signal delay	[ms]	20, 200, adjustable
		Additionally 0.2 ms with interrupt inputs
Electrical isolation		Yes, via optocoupler
Status display	[V DC]	LED

Operating and environmental conditions		
Ambient temperature	[°C]	5 ... 55
Storage temperature	[°C]	–40 ... +70
Resistance to shock		EN 60068-2-27 EA
		15 g, 11 ms (half-sine)
Resistance to vibration		EN 60068-2-6-FC
		5 ... 9 Hz 3.5 mm
		9 ... 150 Hz 1g
Relative air humidity	[%]	10 ... 95
Protection class		IP20
Certification		cULus Listed (OL)

Ordering Data

Input module, digital	Part No.	Type
	**552096**	**CECX-D-16E**

Documentation[1]	Language	Part No.	Type
	EN	**560574**	**GDCC-CECX-D-16E-EN**
	ES	**560575**	**GDCC-CECX-D-16E-ES**
	FR	**560576**	**GDCC-CECX-D-16E-FR**

1) User manual in paper form is not included in the scope of delivery

Multi-axis Controllers CMXR

Technical Data

FESTO

Output module, digital
CECX-D-14A-2

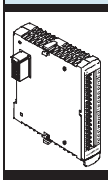
General Technical Data		
Operating voltage range	[V DC]	19.2 ... 30
Nominal operating voltage	[V DC]	24
Electrical connection technology for I/O		Socket strip, grid 5.08 mm
Power consumption at the system bus	[W]	0.4
Protection class		III
Product weight	[g]	135
Materials		
Note on materials		Contains PWIS (paint-wetting impairment substances)
		RoHS-compliant

Technical Data		
Digital outputs		
Number		14
Contact		Transistor
Output voltage	[V DC]	24
Output current	[A]	2 with 50% concurrence per group
Short circuit proof		Yes
Electrical isolation		Yes, via optocoupler
Electrical isolation in groups		Yes, in 2 groups
Status display	[V DC]	LED

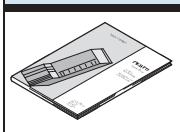
Operating and environmental conditions		
Ambient temperature	[°C]	5 ... 55
Storage temperature	[°C]	–40 ... +70
Resistance to shock		EN 60068-2-27 EA
		15 g, 11 ms (half-sine)
Resistance to vibration		EN 60068-2-6-FC
		5 ... 9 Hz 3.5 mm
		9 ... 150 Hz 1g
Relative air humidity	[%]	10 ... 95
Protection class		IP20
Certification		cULus Listed (OL)

Ordering Data

Output module, digital

	Part No.	Type
	**552097**	**CECX-D-14A-2**

Documentation[1)]

	Language	Part No.	Type
	EN	**560580**	**GDCC-CECX-D-14A-EN**
	ES	**560581**	**GDCC-CECX-D-14A-ES**
	FR	**560582**	**GDCC-CECX-D-14A-FR**

1) User manual in paper form is not included in the scope of delivery

Input/output module, analogue
CECX-A-4E4A

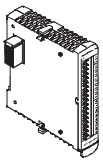
General Technical Data			
		CECX-A-4E4A-V	CECX-A-4E4A-A
Variant		Voltage inputs/outputs	Current inputs/outputs
Electrical connection technology for I/O		Socket strip, grid 5.08 mm	
Power consumption at 5 V	[W]	0.3	0.3
Power consumption at 24 V	[W]	3.3	3.6
Protection class		III	
Product weight	[g]	135	
Materials			
Note on materials		Contains PWIS (paint-wetting impairment substances)	
		RoHS-compliant	

Technical Data			
		CECX-A-4E4A-V	CECX-A-4E4A-A
Analogue inputs			
Number		4	4
Resolution	[bit]	14	14
Signal range	[V]	0 ... 10 Vref	–
		±10	–
	[mA]	–	0 ... 20
		–	4 ... 20
Value of the least significant bit (LSB)	[mV]	1.3	–
	[µA]	–	1.35
Supply voltage for actuators	[V DC]	10 ±2.5 % (max. 20 mA)	–
Input resistance	[Ω]	$10x10^6$	< 200
Absolute accuracy at 25 °C	[%]	±0.01	±0.01
Sampling repeat time	[ms]	1	1
Electrical isolation		No	No
Analogue outputs			
Number		4	4
Resolution	[bit]	12	12
Max. load resistance	[Ω]	≥ 1 000	≤ 600
Signal range	[V]	±10	–
	[mA]	–	0 ... 20
Value of the least significant bit (LSB)	[mV]	5.32	–
	[µA]	–	5.39
Conversion time	[ms]	1	1
Absolute accuracy at 25 °C	[%]	±0.15	±0.15

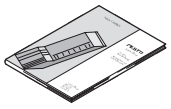
Operating and environmental conditions		
Ambient temperature	[°C]	5 ... 55
Storage temperature	[°C]	–40 ... +70
Resistance to shock		EN 60068-2-27 EA
		15 g, 11 ms (half-sine)
Resistance to vibration		EN 60068-2-6-FC
		5 ... 9 Hz 3.5 mm
		9 ... 150 Hz 1g
Relative air humidity	[%]	10 ... 95
Protection class		IP20
Certification		cULus Listed (OL)

Ordering Data

Input/output module, analogue

	Part No.	Type
	Voltage inputs/outputs	
	552100	**CECX-A-4E4A-V**
	Current inputs/outputs	
	552101	**CECX-A-4E4A-A**

Documentation[1)]

	Language	Part No.	Type
	Voltage inputs/outputs		
	EN	**560592**	**GDCC-CECX-A-4E4A-V-EN**
	ES	**560593**	**GDCC-CECX-A-4E4A-V-ES**
	FR	**560594**	**GDCC-CECX-A-4E4A-V-FR**
	Current inputs/outputs		
	EN	**560598**	**GDCC-CECX-A-4E4A-A-EN**
	ES	**560599**	**GDCC-CECX-A-4E4A-A-ES**
	FR	**560600**	**GDCC-CECX-A-4E4A-A-FR**

1) User manual in paper form is not included in the scope of delivery

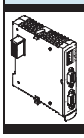
Encoder interface
CECX-C-2G2

General Technical Data		
Operating voltage range	[V DC]	19.2 ... 30
Nominal operating voltage	[V DC]	24
Electrical connection technology for I/O		Socket strip, grid 5.08 mm
Power consumption at 5 V	[W]	0.6
Protection class		III
Product weight	[g]	135
Materials		
Note on materials		Contains PWIS (paint-wetting impairment substances); RoHS-compliant

Technical Data – Interfaces		
Digital inputs		
Fast clock pulse inputs		2 (latch function) response time 20 µs NPN/PNP
Electrical isolation		No
Encoder inputs		
Number		2
Connection technology		Sub-D socket, 9-pin
Resolution	[bit]	Speed measurement: 32
	[bit]	Distance measurement: 24
Transmitter supply voltage	[V DC]	24
	[V DC]	5.05 ±4 % (100 mA/channel)
Max. input frequency	[kHz]	250
Signal range	[V]	5 differential (RS422)
	[V]	24 single-ended

Operating and environmental conditions		
Ambient temperature	[°C]	5 ... 55
Storage temperature	[°C]	–40 ... +70
Resistance to shock		EN 60068-2-27 EA
		15 g, 11 ms (half-sine)
Resistance to vibration		EN 60068-2-6-FC
		5 ... 9 Hz 3.5 mm; 9 ... 150 Hz 1g
Relative air humidity	[%]	10 ... 95
Protection class		IP20
Certification		cULus Listed (OL)

Ordering Data

Encoder interface	Part No.	Type
	**552117**	**CECX-C-2G2**

Documentation[1]	Language	Part No.	Type
	EN	**560604**	**GDCC-CECX-C-2G2-EN**
	ES	**560605**	**GDCC-CECX-C-2G2-ES**
	FR	**560606**	**GDCC-CECX-C-2G2-FR**

1) User manual in paper form is not included in the scope of delivery

Fieldbus interface,
Profibus slave DP-V0
CECX-F-PB-S-V0

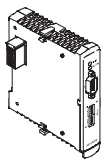
General Technical Data		
Power consumption at 5 V	[W]	1.4
Status displays		LED (status)
		LED red = bus fault
Protection class		III
Product weight	[g]	140
Materials		
Note on materials		Contains PWIS (paint-wetting impairment substances)
		RoHS-compliant

Technical Data – Interface	
Fieldbus	
Type	Profibus slave DP-V0
Connection technology	Sub-D socket, 9-pin
Transmission rate	9.6 kbps ... 12 Mbps
Electrical isolation	Yes

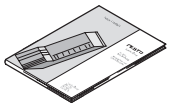
Operating and environmental conditions		
Ambient temperature	[°C]	5 ... 55
Storage temperature	[°C]	–40 ... +70
Resistance to shock		EN 60068-2-27 EA
		15 g, 11 ms (half-sine)
Resistance to vibration		EN 60068-2-6-FC
		5 ... 9 Hz 3.5 mm
		9 ... 150 Hz 1g
Relative air humidity	[%]	10 ... 95
Protection class		IP20
Certification		cULus Listed (OL)

Ordering Data

Fieldbus interface, Profibus slave DP-V0

	Part No.	Type
	**552102**	**CECX-F-PB-S-V0**

Documentation[1)]

	Language	Part No.	Type
	EN	**560568**	**GDCC-CECX-F-PB-S-V0-EN**
	ES	**560569**	**GDCC-CECX-F-PB-S-V0-ES**
	FR	**560570**	**GDCC-CECX-F-PB-S-V0-FR**

1) User manual in paper form is not included in the scope of delivery

Teach pendant
CDSA-D1-VX

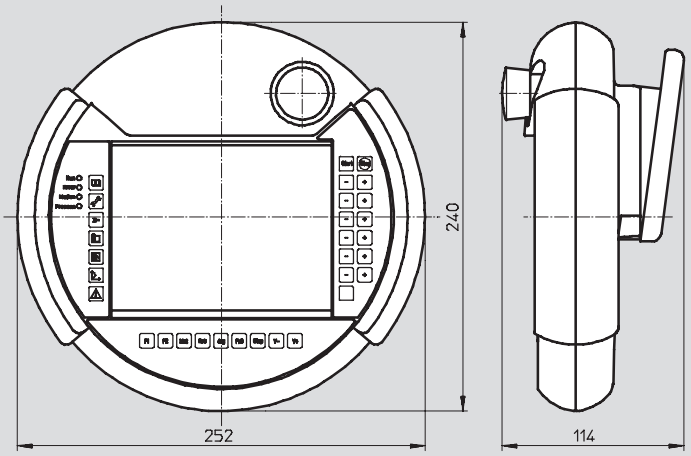
General Technical Data		
Operating voltage range	[V DC]	19 ... 30
Nominal operating voltage	[V DC]	24
Current consumption[1)]	[A]	0.4
User memory	[MB]	256
Display		Colour TFT
Display size		6.5”
Display resolution		VGA, 640x480 pixels
Display properties		Touch screen
Number of function keys		31
Number of system LEDs		4
Operating elements		2 enabler keys
		Emergency stop
Area of application		Only with multi-axis controller CMXR-C1
Ethernet interface		2 interfaces
		RJ45, 10/100 Mbps
USB interface		Yes
Backup battery		Yes
Product weight	[g]	1,250
Materials		
Note on materials		Contains PWIS (paint-wetting impairment substances)
		RoHS-compliant

1) At nominal operating voltage

Operating and environmental conditions		
Ambient temperature	[°C]	0 ... +50
Storage temperature	[°C]	–20 ... +70
Relative air humidity	[%]	5 ... 95
Protection class		IP65
CE mark (see declaration of conformity)		To EU EMC Directive

Dimensions

Download CAD Data ➔ **www.festo.com/us/cad**



Ordering Data

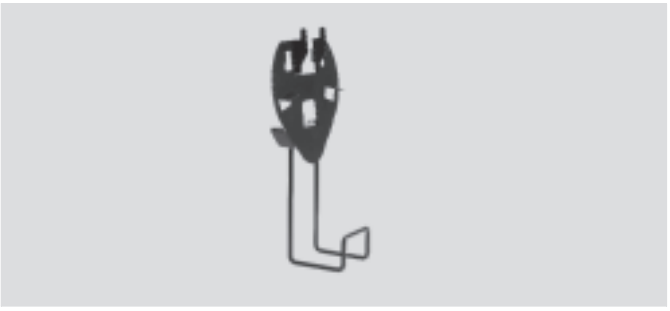
	Part No.	Type
Teach pendant	**552103**	**CDSA-D1-VX**

Ordering Data – Documentation[1)]

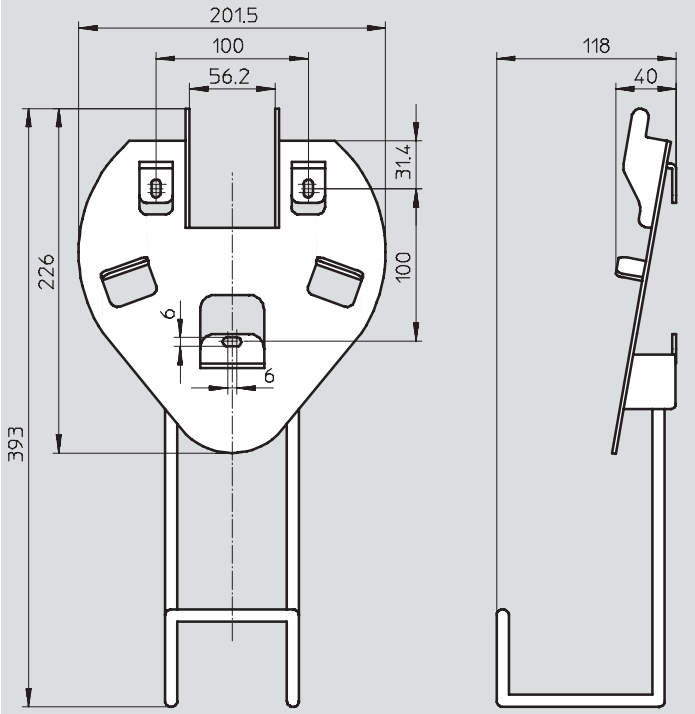
	Language	Part No.	Type	Part No.	Type
		System manual		Software manual	
	EN	**560334**	**GDCP-CDSA-SY-EN**	**560340**	**GDCP-CDSA-SW-EN**
	ES	**560335**	**GDCP-CDSA-SY-ES**	**560341**	**GDCP-CDSA-SW-ES**
	FR	**560336**	**GDCP-CDSA-SY-FR**	**560342**	**GDCP-CDSA-SW-FR**

1) User manual in paper form is not included in the scope of delivery

Retainer
CAFM-D1-W



Dimensions Download CAD Data ➔ **www.festo.com/us/cad**



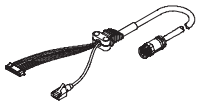
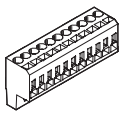
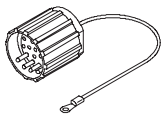
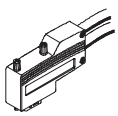
Ordering Data

	Part No.	Type
Retainer	**552107**	**CAFM-D1-W**

Interface housing
CAMI-C

General Technical Data		
Type of mounting		On control cabinet wall (M25)
Mounting position		Any
Electrical connection		Ethernet interface: RJ45
		Coninver connector M25, 17-pin
		Spring force connector, 11-pin
Protection class		IP65 to IEC 60529
Dimensions		
Length	[mm]	26
Width	[mm]	67.2
Height	[mm]	76.1
Materials		
Note on materials		Contains PWIS (paint-wetting impairment substances)
		RoHS-compliant

Ordering Data	Part No.	Type
Interface housing	**552116**	**CAMI-C**

Ordering Data – Cables and plugs	Brief description	Cable length [m]	Part No.	Type
	Connecting cable: between multi-axis controller CMXR and teach pendant CDSA via interface housing CAMI-C	5	**552104**	**NESC-C-D1-5-C1**
		10	**552105**	**NESC-C-D1-10-C1**
		15	**552106**	**NESC-C-D1-15-C1**
	Plug for interface housing CAMI-C, 11-pin	–	**558328**	**NECC-L1G11-C1**
	Plug for peripheral modules, 2-pin		**553857**	**NECC-L1G2-C1**
	Plug for peripheral modules, 4-pin		**553858**	**NECC-L1G4-C1**
	Plug for peripheral modules, 6-pin		**553859**	**NECC-L1G6-C1**
	Plug for peripheral modules, 8-pin		**553860**	**NECC-L1G8-C1**
	Plug for peripheral modules, 18-pin		**553861**	**NECC-L1G18-C1**
	Plug: is used to bridge the emergency stop circuit when the teach pendant is disconnected	–	**555676**	**CAMF-B-M25-G4**
	Plug: for Profibus interface; Sub-D, 9-pin, without terminating resistor	–	**533780**	**FBS-SUB-9-WS-PB-K**
	Plug: for CAN bus interface; Sub-D, 9-pin, without terminating resistor	–	**533783**	**FBS-SUB-9-WS-CO-K**

Product Range and Company Overview

A Complete Suite of Automation Services

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.

Custom Automation Components
Complete custom engineered solutions

Custom Control Cabinets
Comprehensive engineering support and on-site services

Complete Systems
Shipment, stocking and storage services

The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.

Electromechanical
Electromechanical actuators, motors, controllers & drives

Pneumatics
Pneumatic linear and rotary actuators, valves, and air supply

PLCs and I/O Devices
PLC's, operator interfaces, sensors and I/O devices

Supporting Advanced Automation... As No One Else Can!
Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 12,000 employees in 56 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

Quality Assurance, ISO 9001 and ISO 14001 Certifications

Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.

9001: CERTCC5-16248-2006-AQ-ESN-TGA
ISO 9001
ISO 14001
DNV
Certified Company
14001: CERTCC5-16248A-2006-AQ-ESN-TGA

© Copyright 2008, Festo Corporation. While every effort is made to ensure that all dimensions and specifications are correct, Festo cannot guarantee that publications are completely free of any error, in particular typing or printing errors. Accordingly, Festo cannot be held responsible for the same. For Liability and Warranty conditions, refer to our "Terms and Conditions of Sale", available from your local Festo office. All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of Festo. All technical data subject to change according to technical update.

FSC Printed on recycled paper at New Horizon Graphic, Inc., FSC certified as an environmentally friendly printing plant.

Festo North America

United States

Customer Resource Center
502 Earth City Expy., Suite 125
Earth City, MO 63045

For ordering assistance, or to find
your nearest Festo Distributor,
Call: 1.800.99.FESTO
Fax: 1.800.96.FESTO
Email: customer.service@us.festo.com

For technical support,
Call: 1.866.GO.FESTO
Fax: 1.800.96.FESTO
Email: product.support@us.festo.com

Headquarters
Festo Corporation
395 Moreland Road
P.O. Box 18023
Hauppauge, NY 11788
www.festo.com/us

Sales Offices

Appleton
N. 922 Tower View Drive, Suite N
Greenville, WI 54942

Boston
120 Presidential Way, Suite 330
Woburn, MA 01801

Chicago
1441 East Business Center Drive
Mt. Prospect, IL 60056

Dallas
1825 Lakeway Drive, Suite 600
Lewisville, TX 75057

Detroit - Automotive Engineering Center
2601 Cambridge Court, Suite 320
Auburn Hills, MI 48326

New York
395 Moreland Road
Hauppauge, NY 11788

Silicon Valley
4935 Southfront Road, Suite F
Livermore, CA 94550

Design and Manufacturing Operations

East: 395 Moreland Road, Hauppauge, NY 11788

Central: 1441 East Business Center Drive, Mt. Prospect, IL 60056

West: 4935 Southfront Road, Suite F, Livermore, CA 94550

Mexico

Headquarters
Festo Pneumatic, S.A.
Av. Ceylán 3, Col. Tequesquinahuac
54020 Tlalnepantla, Edo. de México
Call: 011 52 [55] 53 21 66 00
Fax: 011 52 [55] 53 21 66 65
Email: festo.mexico@mx.festo.com
www.festo.com/mx

Canada

Headquarters
Festo Inc.
5300 Explorer Drive
Mississauga, Ontario L4W 5G4
Call: 1.905.624.9000
Fax: 1.905.624.9001
Email: info.ca@ca.festo.com
www.festo.com/ca

Festo Worldwide

Argentina Australia Austria Belarus Belgium Brazil Bulgaria Canada Chile China Colombia Croatia Czech Republic Denmark Estonia Finland France Germany Great Britain Greece Hong Kong Hungary India Indonesia Iran Ireland Israel Italy Japan Latvia Lithuania Malaysia Mexico Netherlands New Zealand Norway Peru Philippines Poland Romania Russia Serbia Singapore Slovakia Slovenia South Africa South Korea Spain Sweden Switzerland Taiwan Thailand Turkey Ukraine United States Venezuela

www.festo.com